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| 10/581,573 | 06/02/2006 | Nam-Seok Roh | PNK0337US | 4907 |

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| EXAMINER |
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RAINEY, ROBERT R

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| ART UNIT | PAPER NUMBER |
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2629

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| NOTIFICATION DATE | DELIVERY MODE |
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05/26/2010

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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|------------------------------|--------------------------------------|-----------------------------------|--|
| Office Action Summary | Application No. 10/581,573 | Applicant(s) ROH ET AL. | |
| | Examiner ROBERT R. RAINEY | Art Unit 2629 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 February 2010.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 5-7 is/are pending in the application.
- 4a) Of the above claim(s) 1-4 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 5-7 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 June 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>4/14/10</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicants arguments in the papers dated February 16, 2010 have been fully considered but are not persuasive.

On page 5 applicant argues against examiners combination in the rejection of claim 10, the limitations of which are now in the independent claim five.

In the third paragraph on page 5 applicant states that "However, the inventive idea, replacing one of R, G, B, C, M or Y with W, itself is not disclosed or suggested in the references." Examiner disagrees with this statement. In support of this position applicant quotes a section from page 6 of the previous office action which states that Elliott "discloses the replacement of one subpixel of a six subpixel repeat cell or pixel being replaced with a white element (see for example figure 13 items 1320 and 1323 and paragraphs [0084]-[0085])." Applicant then presents an argument against the statement which offers an alternative teaching gleaned from Elliott without offering an argument against the teaching relied upon in the rejection followed by arguments against Elliott individually rather than against the combination as presented.

Applicant oversimplifies the teachings of Elliott in stating that "Elliott merely discloses RGB or RGBW six subpixel repeat cell arrangements...". If one looks at the six subpixel repeat cell arrangements in their entirety one sees that the RGB repeat cell is and the improved RGBW repeat cell is ,

RBG
GBR

RBG
GWR

which clearly "discloses the replacement of one subpixel of a six subpixel repeat cell or pixel being replaced with a white element".

The rejection is maintained.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. **Claims 5-7** are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Application Publication No. 2008/0192178 to *Ben-David et al.* ("*Ben-David*") in view of U.S. Patent Application Publication No. 2005/0088385 to *Elliott et al.* ("*Elliott*").

As to **claim 5**, *Ben-David* discloses a color display and in particular: A display device comprising: a plurality of pixels arranged in matrix (see for example Fig. 12A, which shows two pixels for example, one shaded and on unshaded), each pixel including first to third pairs of subpixels,

wherein the first pair of subpixels are disposed adjacent to each other (see for example subpixels labeled "G" and "M"), the second (see for example subpixels labeled "R" and "C") and the third pairs of subpixels (see for example

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subpixels labeled "B" and "Y") are disposed opposite each other with respect to the first pair of subpixels (note that the second and third subpixel sets are on opposite sides of the first set), and the first to the third pairs of subpixels include first-color subpixels and second-color subpixels (note that six colors are shown so the requirement that two colors are used is met; as an aid to further prosecution examiner notes that the art cited would also read on a claim that required that each of the first to third subpixel pairs included one first-color subpixel and one second-color subpixel); and wherein the first pair of subpixels is surrounded by the second pair of subpixels and the third pair of subpixels (see for example Fig. 12A, note that R, C, B and Y together surround G and M; note that although applicant argued that "surrounded" describes the condition of Fig. 7 and 8 of the instant application, examiner agrees with Webster's that "SURROUND is a general term not esp. rich in connotation" and that at least definition 2h describes the situation of Fig. 12A; "2 [influenced in meaning by ⁶round] : to be situated or found around, about, or in a ring around: as ... h : to occur or be next, near, adjacent to, or before and after in a sequence or order" Copyright © Webster's Third New International Dictionary, Unabridged, Copyright © 1993 Merriam-Webster, Incorporated. Published under license from Merriam-Webster, Incorporated and Copyright © 2001-2009 ProQuest LLC.).

Ben-David does not expressly disclose that the entire edge of the first pair of subpixels is enclosed by the second pair of subpixels and the third pair of subpixels.

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Elliott discloses a subpixel rendering method and its use in pixels of multiple known subpixel arrangements including two that are six-subpixel repeat cells (see for example Fig. 13 items 1320 and 1323 and [0098]); one of which has a row and column arrangement (see for example Fig. 13 item 1320) and one of which has six substantially triangular shaped segments with two of the triangular shaped segments arranged to form a rectangular central section and the other four arranged proximate the sides of the central section in such a manner that the six segments combine to form a second substantially rectangular section, i.e. a "2-4" arrangement (see for example Fig. 13 item 1323); and that in the 2-4 arrangement the entire edge of the first pair of subpixels is enclosed by the second pair of subpixels and the third pair of subpixels (see for example Fig. 13 item 1323; note that the rectangle formed by the central two subpixels is entirely enclosed by the rectangle formed by the outer four subpixels).

Ben-David and *Elliott* are analogous art because they are from the same field of endeavor which is matrix displays.

At the time of invention, it would have been obvious to a person of ordinary skill in the art to substitute the 2-4 arrangement, in which the entire edge of the first pair of subpixels is enclosed by the second pair of subpixels and the third pair of subpixels, for the row and column arrangement of *Ben-David*. The suggestion/motivation would have been to use an art recognized substitute ([0098] makes it clear that these are both known "six subpixel repeat cells").

Ben-David further discloses that the first-color and the second-color subpixels have complementary relation (see for example Fig. 12A the fact that the colors are used together in a pixel indicates that they have a complementary relation) and that a group consisting of the first-color subpixels include red green, and blue subpixels (see for example Fig. 12A R, G, and B) and a group consisting of the second-color subpixels include cyan, magenta, and yellow subpixels (see for example Fig. 12A C, M, and Y); and

Elliott further discloses the replacement of one subpixel of a six subpixel repeat cell or pixel with a white element (see for example Fig. 13 items 1320 and 1323 and [0084]-[0085]).

Ben-David and *Elliott* disclose the claimed invention except for the replaced subpixel being the M subpixel.

Since the prior art device offered only six choices of subpixel colors to replace – R, G, B, C, M or Y – one of ordinary skill in the art could have pursued the known potential solutions/replacements, with a reasonable expectation of success.

As to **claim 6**, in addition to the rejection of claim 5 over *Ben-David* and *Elliott*:

Ben-David does not expressly disclose that each subpixel in the first pair of subpixels is triangular, and the first pair of subpixels form a diamond.

Elliott further discloses that each subpixel in the first pair of subpixels is triangular, and the first pair of subpixels form a diamond (see for example Fig. 13 item 1323, with the first pair of pixels being the two in the center forming a diamond).

As to **claim 7**, in addition to the rejection of claim 6 over *Ben-David* and *Elliott*, *Elliott* further discloses that a boundary between the first pair of subpixels extends in a row or column direction (see for example Fig. 13 item 1323).

Response to Arguments

4. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action.

Conclusion

5. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ROBERT R. RAINEY whose telephone number is (571)270-3313. The examiner can normally be reached on Monday through Friday 8:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amare Mengistu can be reached on (571) 272-7674. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/RR/

/Amare Mengistu/

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Supervisory Patent Examiner, Art Unit 2629